

WHAT IS CLAIMED IS:

1. A vessel, comprising:

a gas reservoir; and

at least one gas outlet,

wherein the gas outlet comprises an integral gas permeable membrane.

2. The vessel of claim 1, wherein gas flow across the gas permeable membrane is by diffusion.

3. The vessel of claim 1, wherein diffusion of gas through the gas permeable membrane is configured to sterilize the gas.

4. The vessel of claim 1, wherein the gas reservoir comprises a fluid.

5. The vessel of claim 4, wherein the fluid comprises a gas.

6. The vessel of claim 5, wherein the gas comprises one of O₂ and CO₂.

7. The vessel of claim 4, wherein the fluid comprises a liquid.

8. The vessel of claim 7, wherein the liquid is gas enriched.

9. The vessel of claim 7, wherein the liquid is CO₂ enriched.

10. The vessel of claim 9, wherein the CO₂ enriched liquid comprises one of carbonated water and a solution of buffered bicarbonate salt.

11. The vessel of claim 1, wherein the gas reservoir comprises more than one gaseous species.

12. The vessel of claims 1, wherein the gaseous reservoir comprises an ethylene inhibitor.

13. The vessel of claim 12, wherein the ethylene inhibitor comprises 1-methyl
5 cyclopropene.

14. A culture system, comprising:
a first vessel,

wherein the first vessel comprises:

10 a gas reservoir; and

at least one gas outlet,

wherein the gas outlet comprises an integral gas permeable
membrane, and

wherein the first vessel is coupled to a second vessel that comprises a cell.

15 15. The culture system of claim 14, wherein the cell comprises a plant cell.

16. The culture system of claim 14, wherein the plant cell undergoes micro-
propagation.

20 17. The culture system of claim 14, wherein the cell comprises an animal cell.

18. The culture system of claim 14, wherein the cell comprises a bacterial cell.

25 19. The culture system of claim 14, wherein the cell comprises a yeast cell.

20. The culture system of claim 14, wherein the gas outlet on the first vessel is
adapted to connect with a pressurized ventilation stream.

30 21. The culture system of claim 20, wherein the pressurized ventilation stream is
derived from a humidity-induced forced ventilation apparatus.

22. A culture system, comprising:

a first vessel,

wherein the first vessel comprises the vessel of claim 1, and

wherein the first vessel is connected to a second vessel that contains a plant.

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23. A ventilation system, comprising:

a first vessel,

wherein the first vessel comprises the vessel of claim 1, and

wherein the first vessel is connected to a second vessel that contains an

10 animal.

24. A method of supplying a gaseous species to a cell, comprising the steps of:

a.) providing a vessel,

wherein the vessel comprises a gas reservoir and at least one gas outlet, and

15 wherein the gas outlet comprises a gas-permeable membrane; and

b.) connecting, via an interconnecting means, the vessel to at least a second vessel comprising a cell.

25. The method of claim 24, comprising the step of:

20 c.) connecting a humidity-induced forced ventilation apparatus to the interconnecting means.

26. The method of claim 24, wherein the cell comprises a plant cell.

25 27. The method of claim 26, wherein the plant cell undergoes micro-propagation.

28. The method of claim 24, wherein the cell is selected from the group consisting of an animal cell, a bacterial cell, and a yeast cell.

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